



State of Wisconsin
Department of Transportation
Facilities Development Manual

TABLE OF CONTENTS

Chapter 10	Erosion Control and Storm Water Quality
-------------------	--

Procedure Number

SECTION 1 - INTRODUCTION

- | | |
|---|--------|
| Subject 1 - Purpose And Objectives | 10-1-1 |
| Subject 2 - Applicable Laws & Regulations | 10-1-2 |

PART A - EROSION CONTROL

- | | |
|---|---------|
| Subject 3 - Erosion Control Plans | 10-1-3 |
| Subject 5 - The Erosion Process | 10-1-5 |
| Subject 10 - Basic Principles Of Erosion And Sediment Control | 10-1-10 |

SECTION 5 - DEVELOPING AN EROSION CONTROL PLAN

- | | |
|---|---------|
| Subject 1 - Communication And Coordination | 10-5-1 |
| Subject 5 - Planning And Location Considerations | 10-5-5 |
| Subject 10 - Erosion Sensitive Areas | 10-5-10 |
| Subject 15 - Environmental And Customer Sensitive Areas | 10-5-15 |
| Subject 20 - Soils Investigation | 10-5-20 |
| Subject 25 - Geometric Considerations | 10-5-25 |
| Subject 30 - Drainage Guidance For Erosion Control | 10-5-30 |
| Subject 35 - Channel And Slope Matrices | 10-5-35 |
| Subject 40 - Calculating Shear Stress In Channels | 10-5-40 |
| Subject 45 - Analyzing Costs | 10-5-45 |
| Subject 50 - Estimating Erosion Control Quantities | 10-5-50 |
| Subject 55 - Erosion Control Plan Preparation | 10-5-55 |
| Subject 60 - Checklist For Erosion Control Plans | 10-5-60 |
| Subject 65 - Construction Considerations | 10-5-65 |
| Subject 70 - Maintenance Considerations | 10-5-70 |

SECTION 10 - EROSION AND SEDIMENT CONTROL DEVICES

- | | |
|--|----------|
| Subject 1 - Devices And Measures Available | 10-10-1 |
| Subject 3 - Vegetation | 10-10-3 |
| Subject 5 - Temporary Seeding | 10-10-5 |
| Subject 7 - Permanent Seeding | 10-10-7 |
| Subject 9 - Sodding | 10-10-9 |
| Subject 11 - Topsoiling | 10-10-11 |
| Subject 13 - Mulching | 10-10-13 |
| Subject 15 - Erosion Mat | 10-10-15 |
| Subject 17 - Interlocking Cells | 10-10-17 |
| Subject 19 - Riprap Or Grouted Riprap | 10-10-19 |
| Subject 21 - Erosion Bale Barriers | 10-10-21 |
| Subject 23 - Silt Fence | 10-10-23 |
| Subject 25 - Stone Or Rock Ditch Checks | 10-10-25 |
| Subject 27 - Storm Drain Inlet Protection | 10-10-27 |

	<u>Procedure Number</u>
Subject 29 - Culvert Inlet Protection	10-10-29
Subject 31 - Outlet Protection	10-10-31
Subject 33 - Subsurface Drains	10-10-33
Subject 35 - Temporary Fill Diversion	10-10-35
Subject 37 - Diversion Dikes/Intercepting Embankments	10-10-37
Subject 39 - Benching	10-10-39
Subject 41 - Dust Control	10-10-41
Subject 43 - Silt Screen	10-10-43
Subject 45 - Turbidity Barrier	10-10-45
Subject 47 -	To Be Published
Subject 49 - Intermittent Channels	10-10-49
Subject 51 - Sediment Traps And Basins	10-10-51
Subject 53 -	To Be Published
Subject 55 - Safety Fence	10-10-55
Subject 57 - Other Devices	10-10-57
SECTION 15 - APPENDIX	
Subject 1 - Glossary	10-15-1
Subject 5 - Erosion Control. CADD Cells	10-15-5
Subject 10 - References	10-15-10
SECTION 20 - VACANT	
PART B - STORM WATER QUALITY	
SECTION 25 - INTRODUCTION	
Subject 1 - Purpose And Objectives	10-25-1
SECTION 30 - STORM WATER MANAGEMENT AND QUALITY PLANNING	
Subject 1 - The Effects Of Urbanization On Water Quality	10-30-1
Subject 5 - Highway Design Considerations	10-30-5
SECTION 35 - BEST MANAGEMENT PRACTICES (BMP's)	
Subject 1 - Bmp Selection	10-35-1
Subject 5 - Vegetated Swales	10-35-5
Subject 10 - Filter Strips	10-35-10
Subject 15 - Detention,Retention And Infiltration Basins	10-35-15
SECTION 40 - MAINTENANCE BEST MANAGEMENT PRACTICES (BMP's)	
Subject 1 - Introduction	10-40-1
Subject 5 - Street Sweeping	10-40-5
Subject 10 - Catch Basin Cleaning	10-40-10

List of Figures

Procedure	Figure	Title
10-5-25	1	Erosion Control Prevention
	2	Erosion Control At Cut To Fill Transition
	3	Transition From Cut of Fill
10-5-35	1	Channel Erosion Control Matrix
	2	Slope Erosion Control Matrix
10-5-40	1	Manning's Roughness Coefficients Table
	2	Nomograph for Flow in Triangular Channels
10-5-60	1	Erosion Control Plan Checklist
	2	Runoff Coefficient Table
10-10-1	1	Erosion Control Measures
	2	Summary of Control Measure Applications
	3	Example of Selected control Measures Used in Combination
10-10-15	1	Erosion Mat
10-10-39	1	Benched Slope Examples
10-15-5	1	Runoff Coefficient Table
	2	Detail of Sod Slopes at Structures
	3	Sod Detail for Ditches
	4	Sod Inlet Sediment Filter
	5	Sod Treatment at Culverts
	6	Detail of Sod Flume
	7	Sod Flume Detail at Curb Ends
	8	Sod Flume Detail at Curb Ends
	9	Detail of Sod Flume
	10	Erosion Mat Detail for Ditches
	11	Erosion Mat Treatment at Culverts
	12	Detail for Heavy Riprap in Ditches
	13	Detail for Special Ditch with Heavy Riprap & Geotextile Fabric
	14	Detail for Heavy Riprap Ditch
	15	Detail for Riprap in Ditches
	16	Detail for Medium Random Riprap in Ditches
	17	Detail for Special Ditch with Medium Random Riprap & Geotextile Fabric
	18	Detail for Special Ditch with Riprap and Geotextile Fabric
	19	Medium Random Riprap Treatment at Culverts
	20	Riprap Treatment at Culverts
	21	Sod Heavy Riprap & Geotextile Fabric Detail at Apron Endwalls
	22	Sod Heavy Riprap & Geotextile Fabric Detail at Apron Endwalls
	23	Sod Medium Random Riprap & Geotextile Fabric
	24	Heavy Riprap Treatment at Culverts
	25	Erosion Bale Inlet Sediment Barrier
	26	Silt Fence Inlet Sediment Barrier
	27	Plan View Filter Berm
	28	Permanent Stone Ditch Check
	29	Coarse Aggregate Sediment Filter for Inlets

10-15-5	30	Curb Inlet Sediment Barrier (Sandbag Type)
	31	Curb Inlet Sediment Barrier (Sandbag Type)
	32	Coarse Aggregate Sediment Filter For Drop Inlets
	33	Culvert Inlet Sediment Trap
	34	Silt Screen Detail
	35	Turbidity Barrier Detail
	36	Typical Excavated Sediment Trap
	37	Sediment Basin & Outlet Detail
	38	Silting Pond Detail
	39	Temporary Flexible Slope Drain
	40	Concrete Surface Drain
	41	Split Concrete Block Wall
	42	Typical Section of Temporary Channel Change
	43	Detail for Split concrete Block Retaining Wall
10-30-5	1	Highway Runoff Constituents & Their Primary Sources
	2	Pollutant concentrations in Highway Runoff
10-35-1	1	Regional, Site-Specific & Maintenance Considerations for Structural Practices to Control Sediments in Storm Water Runoff
	2	Advantages & Disadvantages of Management Practices